



**Jordan University of Science and Technology**  
**Faculty of Architecture And Design**  
**Architecture Department**

ARCH261 Engineering Mechanics
First Semester 2023-2024

<b>Course Catalog</b>
3 Credit Hours. Application of the fundamental principles of Newtonian mechanics to the statics of particles and the equilibrium of trusses, frames, beams and other rigid bodies. Forces; moments; trusses; beams; free body diagrams; friction; equilibrium; centers of Area; and moments of inertia. Vector algebra and calculus are used.

Text Book	
<b>Title</b>	Statics and Mechanics of Materials
<b>Author(s)</b>	A.Bedford, W.Fowler and K.M. Liechti
<b>Edition</b>	6th Edition
<b>Short Name</b>	1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
2	Vector Mechanics for Engineers	Ferdinand P. Beer, E.Russell, Johnston, Elliot R. Eisenberg	8th Edition	
3	Mechanics (problems and solutions)	D.P.sharma.	1st Edition	

Instructor	
Name	Mrs. Abeer Andrawes
Office Location	A3 L-1
Office Hours	Sun : 08:00 - 08:30 Sun : 10:00 - 11:00 Mon : 08:00 - 08:30 Mon : 11:00 - 12:00 Tue : 08:00 - 08:30 Wed : 08:00 - 08:30 Wed : 10:00 - 11:00 Thu : 08:00 - 09:00
Email	atandrawes7@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon : 08:30 - 10:00 Room: CH2106
Section 2: Lecture Time: Sun : 08:30 - 10:00 Room: PH2106

Prerequisites		
Line Number	Course Name	Prerequisite Type
921010	PHY101 General Physics (1)	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	1-What is Mechanics? 2-Fundamentals Concepts and principles 3-systems of units 4-Newtons Law	From 1
Week 2	Vectors: Review of vectors operation (Addition, subtraction)	From 1
Week 2	Forces: 1- Types of forces 2-Equilibrium and free body diagrams	From 1
Week 3	3-Two dimensional force systems	From 1
Week 3	4-Two dimensional force systems (Examples)	From 1
Week 4	5-Three dimensional force systems	From 1

Week 4	Moment: Moment of force about and a given axis	From 1
Week 5	Moment of a couple+ midterm exam	From 1
Week 5	Objects in equilibrium : 1-Equilibrium Equations	From 1
Week 6	2-Two and three dimensional applications	From 1
Week 7	Analysis of trusses 1-Definition 2-method of joint	From 1
Week 7	3-Method of section (Examples)	From 1
Week 8	Frames	From 1
Week 9	Distributed load	From 1
Week 10	Centroid	From 1
Week 11	Centroid	From 1
Week 11	Moment of inertia	From 1
Week 12	Moment of inertia (Examples) +Parallel axis theory	From 1
Week 12	parallel axis theory (examples)	From 1
Weeks 13, 14	Final Exam period	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
The students will be able to utilize vector addition, subtraction, dot and cross product to analyze forces and moments by using textbook [1B.B5]	20%	
The students will be able to analyze equilibrium of a particle and rigid bodies in 2D and 3D [1B.B5, 1B.B8]	30%	
The students will be able to analyze simple trusses and frames using equilibrium equations [1B.B5]	25%	
The students will be able to calculate the centroid and moments of inertia of composite cross sections [1B.B5]	25%	

Relationship to Program Student Outcomes (Out of 100%)																										
A.A1	A.A2	A.A3	A.A4	A.A5	A.A6	A.A7	A.A8	B.B1	B.B2	B.B3	B.B4	B.B5	B.B6	B.B7	B.B8	B.B9	B.B10	C.C1	C.C2	C.C3	D.D1	D.D2	D.D3	D.D4	D.D	
												85			15											

Evaluation	
Assessment Tool	Weight
Midterm exam	35%
Quizzes	15%
final exam	50%

Policy	
Evaluation	Two exams will be held during the semester: 1-First Exam Written Exam 35% 2-Quizzes 15% 3-Final Exam Written Exam 50%

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